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Smart Cities: Towards a New Citizenship Regime? A Discourse Analysis of the British Smart City Standard

Simon Joss, Matthew Cook, and Youri Dayot

ABSTRACT

Growing practice interest in smart cities has led to calls for a less technology-oriented and more citizen-centric approach. In response, this article investigates the citizenship mode promulgated by the smart city standard of the British Standards Institution. The analysis uses the concept of citizenship regime and a mixture of quantitative and qualitative methods to discern key discursive frames defining the smart city and the particular citizenship dimensions brought into play. The results confirm an explicit citizenship rationale guiding the smart city (standard), although this displays some substantive shortcomings and contradictions. The article concludes with recommendations for both further theory and practice development.

KEYWORDS

Smart city; citizenship; standard; urban policy; urban planning

Introduction

Interest in the smart city has grown rapidly across global regions, so much so that it has become a major paradigm of urban policy, planning, and development. According to de Jong et al. (2015), a bibliometric analysis of academic literature reveals the smart city as a dominant category among 12 key contemporary urban concepts. Indeed, Moir et al. (2014: 4) argue that

sustainability is no longer the main prism through which thinking about the future of cities takes place ... “Smart cities” has become the most popular formulation for the future city, and is becoming a globally recognised term.

Surging interest in smart cities is widely evident in practice too, illustrated by initiatives such as the Indian government’s Smart City Mission (Ministry of Urban Development, n.d.), the US government’s Smart City Challenge (US Department of Transportation, n.d.), and the European Commission-funded Smart City Solutions (GrowSmarter, n.d.). The U.K. government estimates that there will be a global “smart city market” worth \$408 billion by 2020 (BIS, 2013: 1).

Accompanying this growing interest, a powerful critique of the smart city has emerged. Scholars interrogate the relationship between smart city projects and neoliberalism, particularly concerning the corporatization of city management and technocratic governance (e.g., Greenfield, 2013; Townsend, 2013; Söderström et al., 2014; Vanolo, 2014; Calzada

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and Cobo, 2015; Hollands, 2015; Kitchin, 2015); draw attention to the effects of urban surveillance and digital governance facilitated by “big data” (e.g., Graham, 2012; Gabrys, 2014; Kitchin, 2014; Rabari and Storper, 2015); query the claim that smart cities necessarily contribute to sustainable development (e.g., Gargiulo Morelli et al., 2013; Viitanen and Kingston, 2014; de Jong et al., 2015); lastly, highlight the apparent hype surrounding smart city initiatives driven by marketing campaigns focused on finding uses for new technologies (e.g., Saunders and Baeck, 2015). Throughout, questions have emerged about how to (re)cast the smart city with greater public, local inflection or, as Saunders and Baeck (2015) suggest, “rethinking smart cities from the ground up.” In response, smart city advocates seek to rationalize and legitimize it with reference to the public interest, even democracy. For example, the Smart City Expo World Congress website (“the worldwide leading event for smart cities”) has as its strapline “cities for citizens; citizens changing cities” (SCEWC, n.d.). Elsewhere, French utility company Suez Environnement (n.d.) promotes *Cit’eazen*TM, an application under its smart city offering, with reference to “reinforcing the links between the city and its residents” and promising to let “citizens ... take on a new role in their daily lives”. Given these efforts to render the smart city supposedly more “citizen-centric,” the question arises what particular norms and practices of citizenship are promulgated through the smart city and, relatedly, in which ways these may depart from traditional understandings of citizenship, thereby pointing to an emergent, new citizen regime. This is important to address if invoking citizenship is to go beyond mere platitude, to signal a more inclusive, emancipatory approach to (smart) city planning.

This article seeks to investigate these questions with the example of the smart city standard issued by the British Standards Institution (BSI) in 2014 to 2015. (For a wider discussion of recent UK smart city initiatives and related policy discourse, see Caprotti et al., 2016; and Cowley et al., 2017.) The standard, consisting of a suite of six complementary documents (two more are in preparation), was commissioned by the UK government as part of its smart city strategy. The suite is analyzed here for two reasons: first, a standard is a body of codified text which encapsulates “an agreed way of doing something, written down as a set of precise criteria so they can be used as rules, guidelines, or definitions” (BSI, n.d.); and it represents a collective work based on expert consensus process in technical committees and public consultation (BSI, n.d.). As such, a standard provides state-of-the-art knowledge at the interface between research, policy, and practice, and its concise language allows for close textual analysis of the conceptual and practical meanings of a given phenomenon. Second, the BSI smart city standard was the first such specification worldwide; apart from being taken up by municipal authorities in the UK—the city of Peterborough, the winner of the international smart city award 2015 (SCEWC, n.d.), is a case in point — it has served as template for the development of international smart city standards by the International Organization for Standardization (ISO, n.d.) and other supranational bodies. Hence, if smart city standards can be expected to influence urban planning practices on the ground then a closer look at how they promulgate citizenship is warranted: they are an important source for scrutinizing the claim that the smart city is becoming more “citizen-centric.”

The BSI smart city standard is emblematic of a wider trend towards standardization in urban planning (as well as other areas of public policy). This is not least evident from the proliferation of variously styled “sustainable city”—and recently also “smart

city”—indicator and standard frameworks (Berardi, 2013; Sharafi and Murayama, 2013; Joss et al., 2015). A diverse range of organizations, from national bodies to international agencies, and from consultancy firms to non-profit social enterprises, have begun to offer up indicator sets, rating tools, and certification schemes; these are intended to be replicable across different urban settings and as such seek to promote knowledge transfer, shared practice learning, and policy mobility. Recently, the push for standardization received a further boost at UN-Habitat III with the adoption of the “New Urban Agenda,” which defines “the urban” at the highest international level through a series of standardized targets and indicators. As Caprotti et al. (2017) point out, this new agenda poses both opportunities and challenges around the emergence of standardizing knowledge practices, raising critical questions about whose interests are served by standardization, and what risk there is for (re)producing a reductionist mode of urban planning and development.

While the BSI smart city standard, then, is one of several ongoing attempts to codify norms and knowledge about the (smart) city and to harmonize related policy and practice, it has particular significance, too: first, as the formal output of a national standards agency (rather than, say, a voluntary code by a non-governmental body), it represents the process of standardization at arguably its most explicit yet; and second, as noted, owing to its pioneering status, it has served beyond the United Kingdom as input into the development of related international standards (notably ISO/IEC 30182 based on BSI-PAS182; ISO 37106 based on PAS181; and ISO 37100 with input from BSI-PAS 180; see also Table 1). In short, the BSI standard is worthy of closer analysis both because of its emergent shaping influence on policy and practice developments at local, national, and international levels, and because as a codified text it affords unique insight into the normative formation of the smart city and related citizenship discourse.

The article is structured as follows: the next section provides a conceptual framework which draws upon political theory and discerns three analytical dimensions for interrogating the citizenship regime advanced by the smart city standard. Details of qualitative and quantitative textual analysis methods applied to the BSI standard are presented. Findings are then reported in two parts: first, a brief discussion situating the standard within the UK policy context, followed by detailed analysis of the standard’s main discourse frames; and second, an exploration of the citizenship regime itself. The discussion section brings together these findings by pinpointing key tensions at the heart of the smart city standard that shape the citizenship regime propagated. The article concludes by identifying areas of both future research and practice development.

Theoretical Perspective: The Citizenship Regime

That the BSI standard frames the smart city rather centrally in terms of citizenship is evident from the introduction to its overview document: the opening sentence refers to city authorities “striv[ing] to meet aspirations of citizens,” and the section concludes by highlighting the role of the standard in “providing assurance to citizens” (BSI-RoS, 2014: 4). Throughout this and the five sister documents there is repeated reference to citizens (analyzed in more detail further below).

Of course, notions of citizenship and participation in urban developments are far from simple and unproblematic (Fainstein, 2000; Joss, 2014). There is a long history in urban

planning of non-electoral public participation in contemporary democratic institutions regarding new developments, whether housing extensions or large scale redevelopments. How citizens' voices can be heard and make a difference in such planning processes have formed the basis of a "collaborative turn" in planning research over the last few decades (Healey, 2005). Here, planning is not based on the "rational choice" approach, which was predominant in the post war era, but rather aims through a mix of pragmatism and Habermasian approaches to assist multiple actors to make sense of an urban area, envision and agree about ways in which it can be developed (See Healey, 2005; Innes and Booher, 2010). Collaborative planning has been widely critiqued, most notably for the absence of any view about the outcomes of planning process (Fainstein, 2000). More recent research has focused on digital technologies, which have paved the way for participatory innovations aimed at more just, effective, and legitimate governance (Fung, 2015). Examples aimed at addressing such governance shortfalls include Iceland's crowdsourced and participatory constitutional drafting process (Landemore, 2015); as well as numerous "bottom-up" sociotechnical innovations linked to the "maker culture," illustrated by "living labs," "hackathons," etc. (e.g., Baccarne et al., 2014; Evans et al., 2016; Scholl and Kemp, 2016). Legitimacy deficits of representative government thus create opportunities for legitimacy enhancing forms of citizen participation. Yet the effect of participation through digital means on legitimacy is unclear and cannot, it seems, address a shortfall in systematic leadership (Fung, 2015).

For the smart city standards in particular, the question then is what kind of citizenship regime is constructed discursively by the standard and what might the effects of such constructions be. A citizenship regime defines the ways in which citizens are produced through an ensemble of representational practices (Jenson and Phillips, 1996; Hackell, 2007; Jenson, 2009). It thus encodes within it a paradigmatic representation of identities formative of "the citizen" and corresponding social, economic, and political ordering. Importantly, one should be aware of both inclusive and exclusionary practices, the latter referring to aspects of citizenship left out either tacitly or deliberately in any given discourse. Analytically, a citizenship regime can be examined and interpreted in terms of three intersecting dimensions (Jenson, 2009): (1) the "responsibility mix," which refers to the distribution of responsibility between the individual, the community, the market, and the state; (2) the rights and obligations, which establish the boundaries of a political community; (3) the governing practices, including modes of citizen engagement and access to the state.

Such a three-dimensional analysis should help discern differently categorized citizens (e.g., as resident, voter, entrepreneur), what rights they can claim and the manner in which these rights can be claimed (Hackell, 2007: 21). The three analytical dimensions typically generate a spectrum of citizenship regimes. Two contrasting, core political theory traditions of thinking about citizenship can be discerned at each end of the spectrum and are presented here as reference points: the individual-liberal, and the civic-republican (e.g., Kartal, 2001–2002; Matravers and Pike, 2003; Parekh, 2016). By juxtaposing the two traditions, contrasting elements and key differences are highlighted which enables the citizenship stance espoused by the smart city standard to be brought into relative perspective. The grounded assumption here is that the smart citizenship regime more likely resembles a mixture, rather than a pure form of either one, of these traditions. This then also opens up a discussion about the prospect of the smart city

standard forging a potentially new, distinctive citizenship discourse through the re-specification of social subjectivity and representative meanings and practices (See also Vanolo, 2016, on the potential of smart city imaginaries and technologies reconfiguring political subjectivities).

The civic-republican regime may be best characterized by its embracing active participation as a key constitutive element of citizenship. Here, the individual is “somebody who acts as a citizen, who conceives of herself as a participant in a collective undertaking” (Mouffe, 1992: 4). In the words of Sandel (1984: 87–93), the individual stands in “essentially shared relations” with the community; the latter is, therefore, a “constitutive community” formed through a reciprocal relationship with individual citizens. Citizenship is not primarily defined in terms of representative government, with the limited state protecting basic civil rights and ensuring citizens’ individual freedom. Rather, it is conceived of as the active engagement of citizens, as custodians of public life, in collective affairs. Public deliberation and political participation and contestation are an essential part of establishing common values and goods, which in a pluralistic society requires accommodating diverse perspectives through open deliberation rather than relying on a homogenous community containing a universal common good. And as citizenship is a “fact of everyday life” (Kartal, 2001–2002: 23), it concerns itself with wide-ranging socioeconomic issues and related questions of social (in)equality.

In contrast, citizenship in the individual-liberal tradition is more passive and restrictive, primarily understood in terms of legislated rights enshrined in the institutions of the state. Here, citizenship is conventionally defined in the form of constitutionally guaranteed basic civil, political, and social rights (freedom of speech, the franchise, property ownership, basic welfare provision, etc.) that ensure the freedom and equality of individuals to pursue their self-interests, render the (neutral) state accountable, and protect the free market. The individual is seen as an “unencumbered self” standing in more “contingently shared relations” (Sandell, 1984: 85–87) with the community (the individual is “prior to society”). Democracy is limited to formal institutional mechanisms, such as periodic elections and the legal safeguarding of freedom of expression. There is a relative absence of a vigorous participatory culture. And insofar as politics is reduced to the market place, framed by capitalism, it may reproduce if not exacerbate social inequalities.

These opposing traditions barely exist in absolute form in practice; instead, they are principally elaborated theoretically to tease out and clarify key criteria and conditions of citizenship and the state. (And it is worth noting ongoing scholarly efforts aimed at reconciling these opposing poles to revitalize contemporary liberal democracy: e.g., Barber, 1984; Dryzek, 2002; Matravers and Pike, 2003; Parkinson, 2006; Smith, 2009; Machin, 2013; Parekh, 2016). Applied to the analysis of the BSI standard, they are useful points of orientation in the analysis of the smart city standard, prompting us to interrogate based on the three aforementioned analytical criteria: (1) how the citizen is related to the community (and *vice versa*); (2) which domains and issues fall within the purview of citizenship; (3) what importance is ascribed to public deliberation and political participation.

Of particular interest here is to interpret how the citizenship regime is fashioned by the central concepts of system complexity and digital knowledge infrastructure underpinning the smart city and its standardization.

Methodology

Since the BSI smart city standard is a concise technical text resulting from expert deliberations, a close textual analysis is well suited to interrogate the citizenship regime as discursively constructed. This is accomplished here through a combination of quantitative and qualitative analyses. The quantitative analysis is primarily intended to provide a measure of relative weight given to citizenship in the standard. This reveals the *occurrence* (frequency) of the term “citizen(s)” in relation to the six individual documents and the overall body of text. The occurrence of “citizen(s)” can be compared with that of other actors (e.g., “business,” “customer,” “resident,” “local authorities”), thus showing relative weight afforded to citizenship. Furthermore, *co-occurrences* can be measured by looking at the frequency of word associations; this yields quantitative information about how the term “citizen(s)” is conceptualized. On its part, the qualitative textual analysis serves two interrelated purposes: first, to examine the discursive frames which, together, construct the overarching smart city discourse regime. Here, the standard texts are understood as acting as a discursive space of new representation (See Kitchin, 2014: 113; also Flyvbjerg, 2001), a politically constitutive force forming—through meanings and advocated practices—the object of which it speaks; namely, the smart city and its citizens. Second, the discourse analysis homes in on the citizenship regime itself, which is understood as contributing to the ordering of the space of citizens’ representation and giving content to the institutions and practices sustaining it. Here, a particular focus is on how the textual narrative constructs citizens’ subject positions, based on the theoretical elaborations in the previous section. As noted, the analysis should also look out for aspects of citizenship excluded from the text.

The suite of six documents, totalling 272 A4 pages of text, were analyzed using two complementary software programs: AntConc, and Nvivo. The former was used to calculate the co-occurrences of “citizen(s)” and associated terms, whereby five words each before (to the left) and after (to the right of) “citizen(s)” were captured (functional words without significant meaning, such as “a,” “the,” “and” were excluded). A statistical T-score test calculated the similarity of colocation of two terms (“citizen(s)” and associated terms). Nvivo was used for coding, on one hand, smart city discourse frames (the codes were derived from initial manual analysis) and, on the other, citizens’ subject positions (coding was based on the aforementioned theoretical perspectives and initial manual analysis). For each document, a triangulation methodology was applied, whereby one researcher was responsible for generating the data, a second researcher validated and interpreted the data, and the third researcher acted as reviewer.

Due to limited space, only the most important data are shown herein; the full data set is available on the lead author’s ResearchGate profile.

Smart City: Main Discourse Frames

In order to make sense of the citizenship regime promoted by the BSI standard, analysis first needs to dissect the overarching narrative used to justify and naturalize the smart city as a new urban paradigm. In turn, this merits mention of the wider policy and organizational context giving rise to the world’s first smart city standard. BSI (the United

Kingdom's standardization agency) was commissioned to develop the standard by the UK government's Department for Business, Innovation and Science (BIS; now, Department for Business, Energy and Industrial Strategy). At the same time, this department launched a national competition inviting smart city proposals: the Future Cities Demonstrator initiative (TSB, 2012; Taylor Buck and While, 2015). Twenty-nine cities were shortlisted, with Glasgow winning the top award worth £24 million in 2013. The purpose of commissioning the standard was twofold: to develop a standardized strategy for smart cities in the United Kingdom and, thereby, accelerate the implementation of practice initiatives (BSI-RoS, 2014: 4). Furthermore, the UK government saw an opportunity to tap into a growing global market (BIS, 2013). Considering this wider institutional context, it is no surprise that the smart city discourse permeating the standard is one characterized by strong reference to business opportunities, new governance mechanisms, and technological innovation. It is also noteworthy that the Department for Communities and Local Government (DCLG), the UK's ministry with responsibility for planning and urban policy, was not a co-sponsor of the smart city standard, signalling a departure from conventional planning approaches.

BSI published a suite of six documents in 2014–15 under its BSI Standards Publication series (See Table 1): three (nos 1–3) are of more strategic nature, providing definitional groundwork on smart cities and the related role of standards, while the other three (4–6) entail more process-oriented guidance. Technically, the documents were “fast-tracked”—to enable guidance to be “rapidly developed in order to fulfil an immediate need in industry” (BSI-PD8100, 2015: iii)—as either “PD” (Published Document) or “PAS” (Publicly Available Specification), as precursors to a full BSI standard which takes longer to adopt. A further two PAS documents (not analyzed here) were under development at the time of writing (and published in spring 2017).

Across the six documents, there are five main interlocking discourse frames which substantiate the smart city narrative. Figure 1 shows their relative occurrences, revealing that governance reform is the central narrative strategy, closely flanked (in the order of occurrence) by digital innovation, economic growth, resource efficiency, and city systems frames.

Significantly, while digital technological innovation is an essential enabling component, at the core of the smart city discourse is a call for new governance. Or as the overview guide puts it: “the key challenge around smart cities is not technological but about people” (BSI-PD8100, 2015: 10). The significance for the present discussion, then, is twofold: first, the standard puts governing relations center-stage, which helps explain

Table 1. Suite of BSI smart city standards

	Title	Reference
1	The Role of Standards in Smart Cities	BSI-RoS (2014)
2	Smart Cities Overview: Guide	BSI-PD8100 (2015)
3	Smart Cities: Guide to the Role of the Planning and Development Process	BSI-PD8101 (2014)
4	Smart Cities: Vocabulary	BSI-PAS180 (2014)
5	Smart City Framework: Guide to Establishing Strategies for Smart Cities and Communities	BSI-PAS181 (2014)
6	Smart City Concept Model: Guide to Establishing a Model for Data Interoperability <i>In preparation at the time of writing – not analyzed</i>	BSI-PAS182 (2014)
7	Smart Cities: Data Sharing Framework	BSI-PAS183 (2017)
8	Smart City Solutions: Procurement and Business Case	BSI-PAS184 (2017)

Note: BSI=British Standards Institution; PD=Published Document; PAS=Publicly Available Specification.

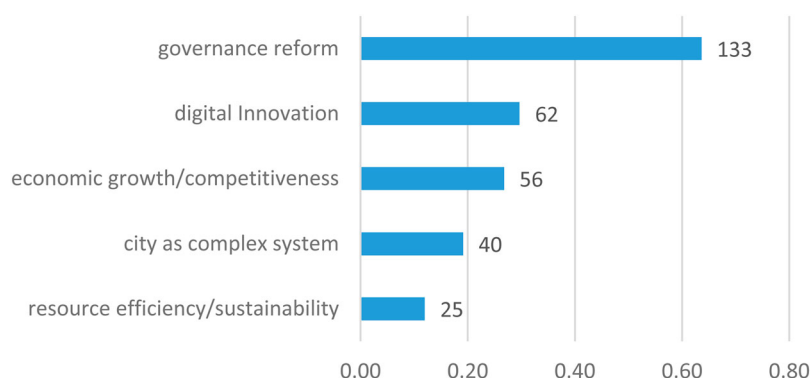


Figure 1. Occurrence of key discursive frames in the BSI smart city standard

Note: Absolute counts of frames, plus average counts per page (decimal), across six documents analysed.

the focus throughout on the proposed collaborative role of key actors including businesses, residents, and not least citizens. At the same time, second, it signals a clear departure from conventional governance mechanisms: “As traditional resource delivery systems approach the limits of their capability, there is an urgent need to innovate in delivery systems to effectively manage and control resource use in Cities” (BSI-RoS, 2014: 4). The case for the smart city as “radical and transformational” solution is made forcefully:

Cities today are facing enormous challenges. It is no longer enough to simply make incremental improvements to the way cities are managed. Instead, city leaders are faced with the task of identifying and implementing radical and transformational solutions. Fortunately, fresh approaches to city management and developments in technology are providing new and useful tools for city leadership, and creating greater opportunities for citizens, businesses, and other organizations to actively participate in implementing the changes that need to take place. (BSI-PD8100, 2015: 1)

Elsewhere the standard asserts in similar vein that “the game has changed. There is a need for new behaviours, culture, and skills” (BSI-PD8101, 2014: 34), which raises intriguing questions about the implications for citizenship.

Digital technology is the key medium through which governance and organizational change advocated is to be achieved. It promises two essential functions: first, “the provision of accurate, timely, and comprehensive information about what is happening in the city” (BSI-PD8100, 2015: 8). To exploit the power of data, “the city should be *instrumented*. Every opportunity should be taken to deploy sensors, CCTV cameras, and other such devices ... to allow the collection of useful data about city life” (BSI-PD8100, 2015: 8; emphasis in original). Second, by exploiting digital data, and thus generating “detailed, measurable, real-time knowledge about the city,” decision-making could be made “more open and inclusive ... allowing citizens, policy makers and businesses to work together to manage the life of the city, for the benefit of all” (BSI-PD8100, 2015: 9). Similarly, “digital modelling” should be used “to deliver a people-centred physical environment ... designed to support the citizen, business, and visitor in achieving their goals and in supporting collaboration and innovation” (BSI-PD8101, 2014: 5).

Not unexpectedly, the emphasis on digital innovation renders the language frequently technical (“delivery systems,” “digital infrastructure,” “data exploitation,” etc.); and this is

reinforced by an ancillary discourse frame: under the heading “city systems,” the text explains that “the physical and social resource systems can be thought of as delivery channels enabled by supporting information flows” (BSI-RoS, 2014: 5). The city conceived of in (complex) system terms is at its most pronounced in the “smart city concept model” (SCCM), which merits a standard document of its own (PAS 182) and defines a practice-oriented application model. As elsewhere, this technical approach claims to be in the service of citizens:

A defining feature of smart cities is the ability of the component systems to ... promote interoperability for data created, used, and maintained by a city across all sectors, on behalf of, and in collaboration with, its citizens. (BSI-PAS182, 2014: 1)

Once again, this underlines the role of data generated by digital technology as the medium through which the new governance—including citizen engagement—in the smart city is to occur.

The need for a new “smart” mode of governance, and the related opportunities of digital data innovation, arise against the looming background of the city cast as “economic engine” and allied concerns about resource limits: “Cities are primary engines of global economic activity; the strain placed on future cities will impact on the effectiveness of their operations, and thus on economic activity” (BSI-PAS180, 2014: 3). Within this ecological modernization narrative (see Dryzek and Schlosberg, 2005), the urgency to address urban resource constraints is made clear:

Cities are under pressure to reduce resources ... The strain on traditional delivery mechanisms and supply of resources due to increasing populations poses as significant challenge to the sustainable growth of Cities. This applies not only to physical ... but also to social and economic resources. (BSI-RoS, 2014: 4)

Consequently, investment in smart cities is posited as both essential and inevitable:

Smart city systems are emerging as a major response to the joint challenges of resource management and economic recovery of cities ... These systems will displace traditional delivery vehicles for physical and social resources, potentially providing cost effective and innovative delivery channels. (BSI-PAS180, 2014: 1)

The economic growth narrative also has specific British undertones, reflecting the prolonged period of economic austerity prevalent when the standard was commissioned. Thus, to a British audience of local authorities, the smart city and the BSI standard presented a way of withstanding drastic financial cutbacks in an era of urban expansion:

In the UK ... cities increasingly need to be able to do more with less, to compete in a globally-interconnected economy, and to provide for the well-being of their citizens in a truly sustainable way. In short, cities need to become smarter. (BSI-PD8101, 2014: 1)

What is meant by ‘doing more with less’ is to seek out collaborative arrangements with other actors: thus, “increasingly as public budgets get stretched and private investors pick up a greater role in service provision, lead investors and funders need to be more actively involved in [the] city ... ” (BSI-PD8100, 2015: 16); and similarly, “a key opportunity is to harness the knowledge and energy of the citizen by providing win-win opportunities to gain their active participation in city transformation” (BSI-PD8100, 2015: 10). Once again, this draws attention to the smart city as a set of new governance relations, with

citizens closely co-opted into the process. The next section considers in more detail the particular citizenship regime advanced.

The “Smart” Citizenship Regime

According to the standard, “for the citizen, the benefits of this integration of city systems include ... an increased sense of democratic participation” (BSI-PD8100, 2015: 7). This and numerous other passages leave little doubt about the BSI standard staking a claim to the smart city engendering active citizenship. To probe this more closely and particularly to gain a measure of the kind of citizenship being envisaged—informed by the three aforementioned citizenship regime dimensions—the texts are analyzed quantitatively for frequency and co-occurrence of the term “citizen(s)” and qualitatively for meanings and practices associated with citizens’ rights, obligations, and engagement. Key findings are summarized in Table 2 and Figure 2. The findings reveal four distinct, yet related themes: first, the smart city is legitimized in terms of acting on behalf of, and bringing benefits to, citizens; within this overarching rationale, second, citizens are enrolled into entrepreneurial governance relations to help effect the smart city; third, data harvesting and analytics become the main means by which information is revealed and decisions are made; and relatedly, fourth, social consensus is assumed to emerge from this process largely without active political deliberation. Altogether, these interlocking themes indicate a particular type of citizenship regime forged by the smart city, one not without tensions and contradictions.

The references to “citizen” in the standard is not incidental: a total of 184 specific mentions (average of 0.88 mentions per page) feature across the six documents (Table 2(a)). The highest frequency (1.96 mention per page) is found in the overview guide

Table 2. Occurrence and co-occurrence of “citizen” in the BSI smart city standard

2a. Occurrence of “citizen” and other actors		
Actor	Total count	Average count per page
Business	245	1.17
Citizen	184	0.88
Local authorities	160	0.77
Customer	91	0.44
Resident	22	0.10
2b. Co-occurrence of words around “citizen” (five words before/after)		
Word	Total count	T-score
Centric	22	9.333
City	21	3.887
Business	16	6.470
Services	12	6.376
Needs	8	6.198
Model	8	6.020
Data	7	3.582
Trust	6	8.712
Customer	4	7.740
Individual	4	5.995
Benefit	4	5.524
Common	4	5.470
Digital	4	4.435

Note: “Citizen” denotes both singular and plural forms (ditto other actors). “Local authorities” includes “municipal authorities,” “local government,” and “city authorities.”

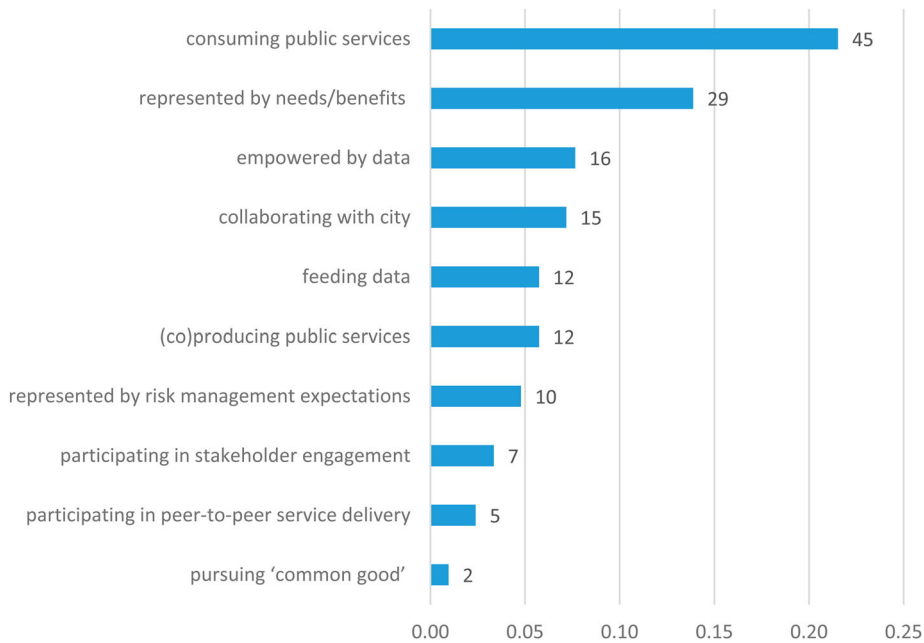


Figure 2. Occurrence of citizens' agency (discursive frames) in the BSI smart city standard

Note: Absolute counts of frames, plus average counts per page (decimal), across six documents analysed

(PD8100); here “citizen” leads the field of actors ahead of “business” (1.43), “customer” (1.17), “local authorities” (0.91), and “resident” (0.3). In the overall corpus, “citizen” features behind “business” as the main actor category, and before “local authorities” as local smart city adaptors. Arguably more revealing than these absolute figures is the close conceptual association of “citizen” with “business,” “customer” and “resident.” At times, “citizen” is used as an umbrella term encompassing the other actor groups, e.g., “The word ‘citizen’ in this definition, and throughout this PAS, is used to include residents, businesses, visitors and commuters to the city” (BSI-PAS181, 2014: 4); and “a city’s citizens (residents and businesses)” (BIS-RoS, 2014: 16). More frequently, however, “citizen” is mentioned *in tandem* with “business”: for example, “delivering improved services to citizens and businesses” (BSI-RoS, 2014: 5); and “to support the citizen, business, and visitor in achieving their goals” (BSI-PD8101, 2014: 5). Overall, there is a close association of “citizen” with “business,” “commuter,” and “visitor,” indicative of a mode of citizenship aligned predominantly with socioeconomic interests. Citizenship as explicit political agency is less pronounced, though does make an appearance, too, e.g., “The citizen, both as a respondent to consultations regarding new development and, more generally, in their role as holding the council democratically accountable” (BSI-PAS180, 2014: 8).

A similar picture emerges from the quantitative co-occurrence analysis (See Table 2(b)). Once again, “citizen” is closely aligned with terms such as “business,” “needs,” “services,” and “customer.” The most frequently associated term is “centric” (which also has the highest T-score, indicative of close collocation with “citizen”), reflecting repeated reference to the smart city’s mission being “citizen-centric,” e.g., “smart city leaders need to ensure

that it [the city vision] is consistent with the ... guiding principles that underpin this vision: citizen-centric, digital, open, and collaborative” (BSI-PAS181, 2014: 14); and “Cities need to develop ... for more citizen-centric and integrated service delivery” (BSI-PAS181, 2014: 20). Further qualitative analysis—through coding of frames of citizens’ agency—reveals a more differentiated picture still: hence, “citizen-centric” can be seen manifest along a spectrum of attributes and engagement modes (See Figure 2). Across the corpus, citizens are equated with consumers of public services (which has the highest score of frames); posited as (co)producers of said services; attributed with certain needs to be uncovered (through data capture and analytics) and met by municipal authorities; and elsewhere ascribed a more active role of engagement in decision-making processes. This results in the aforementioned four themes intertwining to co-constitute the “smart” citizenship regime.

In The Name of Citizens

The strong framing of the smart city as a development pursued on behalf of citizens, which aims to meet their aspirations, serves as a powerful rhetorical device: rather than suggesting a foremost technocratic purpose (as denounced by a growing chorus of critics), the standard seeks to legitimize smart city innovation avowedly in the name of citizens. Time and again, the texts remind the reader that the efforts to develop and implement the smart city primarily serve the public interest. However, repeated mention of citizens is not merely a rhetorical strategy; instead, co-opting citizens becomes an essential element of the new, “smarter” way of governing cities, with its focus on more customer-oriented and integrated service delivery within a context of reduced public expenditure and opportunities offered by digital technology. Here, citizens take on an essential role of both feeding and utilizing data, without which the viability of the smart city would be called into question. And meeting “citizens’ needs” articulated through these digital mechanisms becomes the central driving force of municipal authority decision-making.

While this does lend agency to citizens—as holders of various socioeconomic needs, and producers and consumers of information—the language deployed by the standard is markedly passive, e.g., “Digital infrastructure provides a medium for delivery of digital services and taking information from citizens [... thus] enabling ‘smarter’ cities: delivering improved services to citizens and businesses” (BSI-RoS, 2014: 5). Within this narrative, repeated use is made of phrases such as “gaining a picture of” and “taking [information] from” citizens (their “needs and behaviours”) (BSI-PAS181, 2014: iv), on one hand, and “providing/delivering services to” and “giving assurance to” citizens (BSI-RoS, 2014: 4–5), on the other; in turn, this should result in “meeting their needs” (BSI-PD8100, 2015: 6). Little is said about how citizens might actively exercise such agency, although it can be inferred that the citizen predominantly acts as an individual (prior to community) and without recourse to collective deliberation; as such, citizens’ rights are understood in terms of citizens having their needs identified, represented, and met by the municipal authorities.

Entrepreneurial Citizens

Such passive citizens’ agency, however, belies a more active mode of entrepreneurial governance advanced in parallel, particularly in the smart cities overview guide (BSI-PD8100,

2015). Here, citizens are co-opted more actively into governing processes by collaborating with city authorities and even engaging in peer-to-peer partnership:

Smart cities are therefore the result of smart leadership, not only from the city leadership itself, but from all citizens and organizations within the city ... smart leadership is about supporting the collaborative effort of all the organizations and citizens in the city. (BSI-PD8100, 2015: 6)

Once again, this highlights the primary focus on governance (not technology) in the smart city standard. And it implies that such “smart” collaborative governance could give citizens voice and an active role in decision-making based on collective deliberation. What is more, citizens’ agency is augmented by suggesting that citizens could be invited to reach decisions among themselves: under the heading “support in helping each other more effectively,” the standard asserts that

Citizens can use open data to develop and use new applications to manage their lives more effectively and to collaborate to tackle joint challenges together ... The opening up of more useful data to the public can ... enable citizens to provide effective peer support to each other. (BSI-PD8100, 2015: 7–8)

Arguably, in this respect the citizenship regime shows some likeness with the civic-republican tradition.

One should note, however, that this mode of citizen engagement, while advocated by PD8100, is thinner on the ground elsewhere in the standard compared with the aforementioned passive mode, and absent altogether in the Role of Standards and PAS180. Furthermore, where a case for it is made, this is mainly within a context of local government retrenchment—that is, municipal authorities having fewer resources available and, therefore, relying on other actors, including citizens, to step into the breach and deliver certain tasks and services for the city. Together, this somewhat tempers the significance of the active, collaborative citizenship mode.

Data Analytics as New “Deliberation”

As discussed, digital technology plays an enabling role, one which (re)constructs citizenship: “A smart city is one that uses digital technology to help engage all of its citizens to collaborate to make the city as a whole work” (BSI-PD8101, 2014: 35); and “promotes the exchange of ideas, knowledge, and skills between citizens and businesses ... to exploit smart technology applications” (BSI-PD8101, 2014: 16). It does so by “releasing data to enable ... citizens to make informed decisions” (BSI-PAS181, 2014: 1) and “empower [ing] citizens and businesses ... through data” (BSI-PAS181, 2014: 29). Quite apart from the bold claim itself, the significance here lies in data becoming the key medium for obtaining, sharing, and analyzing information, and the basis for decision-making: “Data is a resource that can transform the capability of a city, enabling the development of systems and services, and supporting informed decisions” (BSI-PAS182, 2014: 1). At this point, the standard goes beyond its function as mere reference work by putting forward its own operating “smart city concept model” (SCCM), described as “an overarching framework of concepts and relationships ... to describe data” (BSI-PAS182, 2014: 1). The model is designed as an analytical tool to render data from disparate sources “normalized” (BSI-RoS 2014:14) and interoperable, thereby assisting with the creation of open

data platforms. Importantly, it is also envisaged as (improved) decision-making mechanism:

A smart city consists of organizations across all sectors, facilitated by the sharing of data, based on a common framework of its meaning, and consistent use of identifiers and classifications [=SCCM]. Cities organized in this way could experience the following benefits: reduced costs ... integrated city systems and services driven by data; a common understanding of the needs of communities; shared objectives, collaboratively developed and evidenced using data; engaged and enabled citizens and communities; transparency in decision-making [... and] consequently improved quality of life for citizens. (BSI-PAS182, 2014: 4)

The standard thus presents itself as a concomitant part of the new smart governance regime, offering the SCCM as a practice tool to facilitate the identification of community needs, engaging citizens collaboratively, ensuring accountable governance and, ultimately, improving the quality of life in the city. More generally across the six documents, the emphasis on targets, indicators, and metrics (“needed to determine the priorities for improvement and identify in which direction the City is moving”: BSI-RoS, 2014: 8) reinforces the role of “smart” data as source and deliberative medium for decision-making, and underlines the centrality of standardization: “At all of these stages, standards ... can provide vital assistance ... help[ing] city leaders maximize the benefits of smart approaches for their citizens” (BSI-PD8100, 2015: 23).

Assumed Consensus

In providing

a framework that can normalize and classify information from many sources so that data sets can be discovered and combined to gain a better picture of the needs and behavior of a city’s citizens (residents and businesses) (BSI-RoS, 2014: 16),

the SCCM (as the standard overall) points to two underlying assumptions at work: that information can be uncovered and elucidated by systematized, technical process; and that its substance is unproblematic and uncontested, ready to be “normalized.” For all the emphasis on being “citizen-centric,” “identifying citizens’ needs and behaviors,” and engaging citizens “collaboratively,” the standard remains near silent on the fact that issues may be socially contested, subject to political argument. Indeed, space for pluralistic, public deliberation and debate is conspicuous by its absence in the smart city regime, displaced by the overwhelming emphasis on data governance. This unproblematic view, then, assumes that a uniform social understanding of the city—its needs, priorities, vision—prevails and can be forged relatively effortlessly. The standard calls for “a vision for our city’s future which is clear, compelling, and jointly owned by all key stakeholders” (BSI-PAS181, 2014: 10/Fig2), and goes on to list attributes of “smartness” including: “better information, more choice, more convenience;” “inclusive;” “in harmony,” and “[an] easy, friendly and attractive place to come together” (PAS181, 2014: 13/Tab1).

Elsewhere, too, under the heading “becoming a smarter city,” the standard encourages cities to develop a vision involving “all key stakeholders”:

A good way to start is to focus on some key challenges that need to be tackled on a citywide basis. For instance, it is clearly in everyone’s interest to find ways to make the city more

resilient—whether this is against natural disasters or terrorist attacks, or even to cope with some of the normal stresses of life. (BSI-PD8100, 2015: 11)

That these and other topics may be socially contested and challenging for deliberation in practice is left unsaid. And once again, the standard steps in with ready assurance: “Standards ... can describe good practice in a way that makes it easy to know exactly what needs to be done ...” (BSI-PD8100, 2015: 20).

Discussion: Making Sense of the “Smart” Citizenship Regime

The analytical focus in this study on the citizenship regime promulgated by the BSI smart city standard draws attention to the discursive construction of representational practices formative of “the citizen” and corresponding social, economic, and political ordering. Analysis in particular focuses on three intersecting dimensions of citizenship regime: the (envisaged) responsibility relationship between the individual, the community, the market, and the state; the rights and duties establishing the boundaries of political community; and governing practices, including modes of citizen engagement. Two contrasting citizenship regime traditions—the civic-republican and individual-liberal—provide useful background reference points for interpreting the “smart” citizenship regime.

Overall, the picture presented by the citizenship regime in the BSI standard is evidently uneven, displaying some apparent tensions and contradictions. It should be recalled, however, that the primary purpose of the standard is not to present a complete, coherent concept of citizenship, but to define and guide the implementation of smart cities. Furthermore, the standard consists of (so far) six documents, each of which were co-authored by separate technical committees; consequently, expecting perfect consistency may be asking too much. Also, more important than the process by which the standard came together, the unevenness of the citizenship regime must surely be related to the conceptualization of the smart city itself. (Vanolo [2016: 35] comes to similar conclusions in his analysis of prevalent smart city imaginaries, noting “composite of multiple subjectivities” making up the “smart citizen.”) As such, the citizenship regime should not be critiqued for lack of refinement and coherence set against pure ideals and abstract theory. Rather, it should be considered as reflective of an evolving debate about what the smart city seeks to offer as new urban paradigm and emergent practice. Within this context, though, the citizenship regime rightly deserves to be opened up for critical questioning, given the claims made in its name. The standard provides an illuminating source for this, precisely because it represents an official (albeit further evolving) understanding of the smart city in condensed form and based on expert deliberation and public consultation.

The first and most striking finding of the analysis is the role accorded to citizens in the smart city (standard). The discussion of citizenship is not incidental: throughout, the standard forcefully frames the smart city as acting on behalf, and for the benefit, of citizens. Time and again, the text insists that smart cities should be envisioned, planned, and implemented with citizens’ needs and priorities in mind and provides detailed guidance on related good practice. However critical one might view the particular kind of understanding of citizenship at work, and the rather techno-bureaucratic language used, there is little doubt about the commitment with which the smart city (standard) attempts to

embrace a “citizen-centric” agenda. The text suggests sincerely that citizens should be engaged collaboratively in governing the city’s affairs, and it views the opportunity of big data positively as enabling citizen participation and empowerment. In doing so, it forges a new kind of citizen agency that is posited as a potential advancement (“increased sense of democratic participation”) over established regimes. From this perspective at least, the standard seems to have responded with fervor to the recent charge levelled against the smart city as a technocratic endeavour devoid of public ethos and engagement.

If, therefore, the citizenship regime espoused by the standard merits to be taken seriously, at the same time it highlights several problematic, unsettled issues—a second key finding from this research. It is not just that the notion of citizenship is difficult to categorize according to established conventions, rather it appears at times self-contradictory, calling for resolution. For one thing, the very term “citizen” is applied inconsistently, at times suggesting a category of its own (with presumed agency), while at other times used synonymously with “business,” “customer,” and “resident.” The standard thus fails to delineate sufficiently the citizen in relation to other actors and domains, as one would expect from a discussion of the “responsibility mix,” one of the key criteria of citizenship regime analysis. For another, the standard fails to clarify sufficiently what citizens’ rights and obligations are (a further key criterion defining citizenship). It oscillates widely between, on one hand, emphasizing citizens’ needs and behaviors presenting themselves passively and, on the other, advocating citizens’ active engagement in decision-making through collaborative relations with others. Furthermore, while it attaches great significance to governance through data, promising informed decisions and even improved quality of life, it neglects to spell out a realistic scenario of how collaborative decision-making “involving all stakeholders” is to be engendered across the city’s public sphere. As such, it risks reverting to type—in spite of all incantations of the “citizen-centric” approach—by advancing a smooth techno-bureaucratic governance mode which assumes an unproblematic community and benign politics and which, therefore, does not delve deeply into the complex nature of public deliberation and political process.

If one looks for conditioning factors to help explain the particular citizenship regime advanced by the standard and find possible resolutions, two smart city discourse elements seem particularly relevant. (And here it is worth recalling that the standard was commissioned by the United Kingdom’s department for business pursuant to its commercial innovation strategy; see also BIS, 2013.) The first element relates to the smart city cast as a “virtual business infrastructure based around customer needs” (BSI-PAS181, 2014: 32); citizens here are co-opted alongside other socioeconomic actors into the “city information marketplace” (BSI-PAS181, 2014: 15/Fig.5). This does lend them—potentially significant—agency by giving them control over issues concerning their daily lives; however, it largely lacks any collective, normative articulation: underlying questions on public choice, social justice and sustainable development, among others, seem at best marginalized in the “smart” data governance and, thus, not opened up for critical deliberation and public scrutiny. The second, intertwining factor relates to the (smart) city conceived of as complex system. What is striking about this is that, on one hand, the city is presented as *quasi* organism displaying inherent complexity—“cities can be viewed as complex organisms” (BSI-PD8100, 2015: 2), and “in common with many natural and manmade systems, cities are complex” (BSI-PAS180, 2014: 1)—but, on the other, this complexity is immediately simplified: “our understanding of complex systems is achieved by reducing

the complexity to a manageable number of well understood fundamental parameters” (BSI-PAS180, 2014: 1). By emphasizing parameters of “cities’ behavior” and identifying “the set of fundamental building blocks,” the city—and its citizens—can be subjected to methodical empirical analysis and systems readily put in place to “monitor, manage, and control” (BSI-PAS180, 2014: 1). This understanding is translated into good practice guidance offered by the standard, especially the planning and development guide (BSI-PD8101, 2014) and the smart city concept model, SCCM (BSI-PAS182, 2014). The resulting approach to smart city governance is reminiscent of positivist planning traditions of a bygone era (see McLoughlin, 1969): its reductionist methods foreclose a treatment of complexity informed by multifaceted perspectives, collective interactions, and inherent uncertainty. This is remarkable insofar as a less reductionist approach would suggest the need for planning and decision-making in the face of ongoing, hard-to-resolve complexity—precisely the kind of context for which collaborative and pluralistic deliberative governance would lend itself (see Dryzek, 2002; Smith 2009; Machin, 2013).

As noted, the standard itself acts to reinforce this smart city regime:

The role of smart city standards is to support the widespread adoption of common approaches to the implementation of smart city products and services in order to facilitate the rapid development of an effective smart city market. (BSI-RoS, 2014: 10)

It can, of course, be argued that the resulting citizenship mode is only to be expected, since the notion of standardization is surely antithetical to a mode of citizenship which embraces public deliberation, collective action, and political contestation. Yet, significantly, national and international organizations *are* pushing, supposedly on behalf of citizens, for smart city implementation in which standards play a central role. There is, then, an important ongoing task to consider carefully the potential of smart city standards to (re)fashion citizenship discourses, and if necessary suggest less reductionist articulations of the citizenship regime envisioned.

Conclusions

The BSI standard, as this analysis demonstrates, issues a rather striking clarion call for a citizen-centric smart city strategy and practice. And yet, in its determination to place citizens at the heart of smart city innovation, the standard does not quite manage to articulate a sufficiently convincing, internally consistent citizenship regime, resulting in several unresolved issues and some persistent contradictions. While, positively, the standard puts citizenship on the map, thus responding to the charge against the smart city as an essentially technocratic endeavor, the resulting approach calls for further resolution on at least two levels. First, within the standard itself, the three analytical dimensions of citizenship regime should be attended to in more detail, thereby particularly further clarifying the nature of citizens’ agency and more explicitly addressing pluralistic deliberative decision processes beyond the standard’s current limited stance on collaborative governance and its over-reliance on data analytics. There is scope for this, especially since the present documents (both PD and PAS) were fast-tracked with review planned in due course based on further consultation—including insight gained from practice application—and with the option to be ratified as full British Standard (BS). Second, there is an opportunity to explore and further develop the citizenship regime at the practice

interface: after all, the BSI standard is intended, and accordingly promoted, as a practical tool to guide cities wishing to implement smart city strategies. As noted, several cities in the United Kingdom, including Peterborough and Milton Keynes, have already begun to use the smart city standard. Further research should, therefore, address whether the application of the standard has the effect of significantly re-casting local citizenship practices or, conversely, whether local practices moderate or even overrule the citizenship regime propagated by the standard. This could then also draw attention to the emergent governance relationship between BSI, as national agency, and local actors in urban planning and development. Finally, there is a further, important avenue for future research, concerning the theorizing of citizenship itself: as the rapid rise of smart city initiatives—not least reflected in the BSI standard—demonstrates, the very notion of citizenship in the era of “smart” data governance and urban innovation may be undergoing rather profound shifts that can no longer be fully captured with conventional paradigms. Hence, this suggests an equal need for fresh, critical thinking on the part of governance specialists and political theorists, too.

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Bibliography

- B. Baccarne, P. Mechant, D. Schuurma, L. De Marez, and P. Colpaert, “Urban Socio-technical Innovations with and by Citizens,” *Interdisciplinary Studies Journal* 3: 4(2014) 143–156.
- B. Barber, *Strong Democracy. Participatory Politics for a New Age* (Oakland: University of California Press, 1984).
- U. Berardi, “Sustainability Assessment of Urban Communities through Rating Systems,” *Environment, Development and Sustainability* 15: 6 (2013) 1573–1591.
- BIS, *The Smart City Market: Opportunities for the UK*, BIS Research Paper No. 136 (London: Department for Business, Innovation & Science, 2013) https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/249423/bis-13-1217-smart-city-market-opportunities-uk.pdf Accessed August 11, 2016.

- BSI, *Information About Standards* (London: British Standards Institutions, n.d.) <http://www.bsigroup.com/en-GB/standards/Information-about-standards/how-are-standards-made/> Accessed August 11, 2016.
- BSI-RoS, *The Role of Standards in Smart Cities*, no. 2, August 2014 (London: British Standards Institution, 2014).
- BSI-PD8100, *Smart Cities Overview: Guide*, BSI Standards Publication PD8100:2015 (London: British Standards Institution, 2015).
- BSI-PD8101, *Smart Cities: Guide to the Role of the Planning and Development Process*, BSI Standards Publication PD8101:2014 (London: British Standards Institution, 2014).
- BSI-PAS180, *Smart Cities: Vocabulary*, BSI Standards Publication PAS 180:2014 (London: British Standards Institution, 2014).
- BSI-PAS181, *Smart City Framework: Guide to Establishing Strategies for Smart Cities and Communities*, BSI Standards Publication PAS 181:2014 (London: British Standards Institution, 2014).
- BSI-PAS182 (2014) *Smart City Concept Model: Guide to Establishing a Model for Data Interoperability*. BSI Standards Publication PAS 182:2014 (London: British Standards Institution, 2014).
- I. Calzada and C. Cobo, "Unplugging: Deconstructing the Smart City," *Journal of Urban Technology* 22: 1 (2015) 23–43.
- F. Caprotti, R. Cowley, A. Flynn, S. Joss, and L. Yu, *Smart-Eco Cities in the UK: Trends and City Profiles 2016* (Exeter: University of Exeter, 2016) <http://www.smart-eco-cities.org/wp-content/uploads/2016/08/Smart-Eco-Cities-in-the-UK-2016.pdf> Accessed February 15, 2017.
- F. Caprotti, R. Cowley, A. Datta, V. Castán Broto, E. Gao, L. Georgeson, C. Herrick, N. Odendaal, and S. Joss, "The New Urban Agenda: Key Opportunities and Challenges for Policy and Practice," *Urban Research & Practice* (2017) doi:10.1080/17535069.2016.1275618
- R. Cowley, S. Joss, and Y. Dayot, "The Smart City and Its Public: Insights from across Six UK Cities," *Urban Research & Practice* (2017) doi:10.1080/17535069.2017
- M. de Jong M, S. Joss, D. Schraven, C. Zhan, and M. Weijnen, "Sustainable–Smart–Resilient–Low Carbon–Coo–Knowledge Cities; Making Sense of a Multitude of Concepts Promoting Sustainable Urbanization," *Journal of Cleaner Production* 109 (2015) 25–38.
- J. S. Dryzek, *Deliberative Democracy and Beyond: Liberals, Critics, Contestations* (Oxford: Oxford University Press, 2002).
- J. S. Dryzek and D. Schlosberg, *Debating the Earth, The Environmental Politics Reader*, 2nd edn (Oxford: Oxford University Press, 2005).
- J. Evans, A. Karvonen, and R. Raven, eds, *The Experimental City* (Abingdon: Routledge, 2016).
- B. Flyvbjerg, *Making Social Science Matter: Why Social Inquiry Fails and How it Can Succeed Again* (Cambridge: Cambridge University Press, 2001).
- S. S. Fainstein, "New Directions in Planning Theory," *Urban Affairs Review* 35 (2000) 451–478.
- A. Fung, "Putting the Public Back into Governance: The Challenges of Citizen Participation and Its Future," *Public Administration Review* 75 (2015) 513–522.
- G. Gabrys, "Programming Environments: Environmentality and Citizen Sensing in the Smart City," *Environment and Planning D: Society and Space* 32: 1 (2014) 30–48.
- V. Gargiulo Morelli, M. Weijnen, E. Van Bueren, I. Wenzler, L. Salvati, and M. De Reuver, "Towards Intelligently-Sustainable Cities?" *Journal of Land Use, Mobility and Environment* 1 (2013) 73–86.
- A. Greenfield, *Against the Smart City* (New York: Do, 2013).
- S. Graham, "Digital Medieval," *Surveillance and Society* 9: 3 (2012) 321–327.
- GrowSmarter, *Transforming Cities for A Smart, Sustainable Europe* (n.d.) <http://www.grow-smarter.eu/home/> Accessed October 12, 2016.
- M. A. Hackell, *Towards a Neoliberal Citizenship Regime: A Post-Marxist Discourse Analysis* (PhD thesis, University of Waikato Research Commons, Hamilton, 2007). <http://researchcommons.waikato.ac.nz/handle/10289/2530> Accessed August 15, 2016.
- P. Healey, *Collaborative Planning: Shaping Places in Fragmented Societies*, 2nd edn (Basingstoke: Palgrave Macmillan, 2005).

- R. Hollands, "Critical Interventions into the Corporate Smart City," *Cambridge Journal of Regions, Economy and Society* 8: 1 (2015) 61–77.
- J. E. Innes, and D.E. Booher, *Planning with Complexity. An Introduction to Collaborative Rationality for Public Policy* (London and New York: Routledge, 2010).
- ISO, #Mysmartcity (International Organization for Standardization, n.d.) <http://www.iso.org/sites/mysmartcity/index.html> Accessed October 12, 2016.
- J. Jenson, "Redesigning Citizenship Regimes after Neoliberalism: Moving Towards Social Investment," in N. Morel, B. Palier, and J. Palme, eds, *What Future for Social Investment?* (Stockholm: Institute for Future Studies, 2009) 27–44.
- J. Jenson and S. D. Phillips, "Regime Shift: New Citizenship Practices in Canada," *International Journal of Canadian Studies* 14 (1996) 111–136.
- S. Joss, "Rising to the Challenge: Public Participation in Sustainable Urban Development," in W. Hofmeister, P. Rueppel, and L. L. Fook, eds, *Eco-cities: Sharing European and Asian Best Practices and Experiences* (Singapore: Select Books, 2014) 35–51.
- S. Joss, R. Cowley, M. de Jong, B. Müller, B. S. Park, W. Rees, M. Roseland, and Y. Rydin, *Tomorrow's City Today: Prospects for Standardising Sustainable Urban Development* (London: University of Westminster/International Eco-Cities Initiative, 2015).
- F. Kartal, "Liberal and Republican Conceptualisations of Citizenship: A Theoretical Inquiry," *Turkish Public Administration Annual* 27–28 (2001–2002) 101–130.
- R. Kitchin, *The Data Revolution. Big Data, Open Data, Data Infrastructures & Their Consequences* (London: Sage, 2014).
- R. Kitchin, "Making Sense of Smart Cities: Addressing Present Shortcomings," *Cambridge Journal of Regions, Economy and Society* 8: 1 (2015) 131–136.
- H. Landemore, "Inclusive Constitution-making: The Icelandic Experiment," *Journal of Political Philosophy* 23 (2015) 166–191.
- A. Machin, *Negotiating Climate Change. Radical Democracy and the Illusion of Consensus* (London: Zed Books, 2013).
- D. Matravers and J. Pike, eds, *Debates in Contemporary Political Theory: An Anthology* (London: Routledge, 2003).
- B. McLoughlin, *Urban and Regional Planning: A Systems Approach* (London: Faber & Faber, 1969).
- Ministry of Urban Development, *Smart Cities Mission* (New Delhi: Government of India, n.d.) <http://smartcities.gov.in/> Accessed August 11, 2016.
- E. Moir, T. Moonen, and G. Clark, *What are Future Cities? Origins, Meanings, Uses* (London: Future Cities Catapult, 2014) https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/337549/14-820-what-are-future-cities.pdf Accessed January 5, 2015.
- C. Mouffe, ed., *Dimensions of Radical Democracy: Pluralism, Citizenship, Community* (London: Verso, 1992).
- B. Parekh, "Reconstituting Liberal Democracy," in T. Norris, ed., *Strong Democracy In Crisis: Promise or Peril?* (Lanham MD: Lexington Books, 2016) 115–126.
- J. Parkinson, *Deliberating in the Real World: Problems of Legitimacy in Deliberative Democracy* (Oxford: Oxford University Press, 2006).
- C. Rabari and M. Storper, "The Digital Skin of Cities: Urban Theory and Research in the Age of the Sensored and Metered City, Ubiquitous Computing and Big Data," *Cambridge Journal of Regions Economy and Society* 8: 1 (2015) 27–42.
- M.J. Sandel, "The Procedural Republic and the Unencumbered Self," *Political Theory* 12: 1 (1984) 81–96.
- SCEWC, *Smart City Expo World Congress* (n.d.) <http://www.smartcityexpo.com/en/> Accessed August 11, 2016.
- C. Scholl and M. Kemp, "City Labs as Vehicles for Innovation in Urban Planning Processes," *Urban Planning* 1: 4 (2016) 89–102.
- A. Sharifi and A. Murayama, "A Critical Review of Seven Selected Neighborhood Sustainability Assessment Tools," *Environmental Impact Assessment Review* 38 (2013) 73–87.
- G. Smith, *Democratic Innovations. Designing Institutions for Citizen Participation* (Cambridge: Cambridge University Press, 2009).

- T. Saunders and P. Baeck, *Rethinking Smart Cities from the Ground Up* (London: NESTA, 2015).
- O. Söderström, T. Paasche, and F. Klauser, "Smart Cities as Corporate Storytelling," *City* 18: 3 (2014) 307–320.
- Suez Environnement, *Cit'Ease, for Easier City Life* (n.d.) <http://openinnovation-engie.com/uploads/opportunities/covers/56791ee8a9320-PlaquetteCitease-Anglais-627x297-2.pdf> Accessed August 11, 2016.
- N. Taylor Buck and A. While, "Competitive Urbanism and the Limits to Smart City Innovation: The UK Future Cities Initiative," *Urban Studies* (2015) Epub ahead of print. doi:42098015597162.
- A. M. Townsend, *Smart Cities: Big Data, Civic Hackers, and the Quest for a New Utopia* (New York: W. W. Norton & Company, 2013).
- TSB, *Future Cities Demonstrator* (London: Technology Strategy Board, 2012) <http://webarchive.nationalarchives.gov.uk/20130221185318/www.innovateuk.org/content/competition/future-cities-demonstrator.ashx> Accessed October 30, 2015.
- US Department of Transportation, *Smart City Challenge* (Washington DC: US Department of Transportation, n.d.) <http://www.transportation.gov/smartcity> Accessed October 12, 2016.
- A. Vanolo, "Smartmentality: The Smart City as a Disciplinary Strategy," *Urban Studies* 51: 5 (2014) 881–896.
- A. Vanolo, "Is There Anybody out There? The Place and Role of Citizens in Tomorrow's Smart Cities," *Futures* 82 (2016) 26–36.
- J. Viitanen and R. Kingston, "Smart Cities and Green Growth: Outsourcing Democratic and Environmental Resilience to the Global Technology Sector," *Environment and Planning A* 46: 4 (2014) 803–819.